

# **UNIT 9: PRE-INCIDENT PLANNING**



# LEARNING OBJECTIVES

By the end of this unit, participants will be able to:

- State the objectives of pre-incident planning
- Explain the process for developing a pre-incident plan
- List types of information needed to assess risks
- Explain how to assess community vulnerability
- List resources that may be considered when planning
- Describe environmental factors that should be considered when pre-incident planning

# INSTRUCTOR NOTES

## Purpose of Unit:

This unit reviews pre-incident planning for hazardous materials incidents. Pre-incident planning is a process that is similar to fire planning, with which students may already be familiar. The case studies discussed in Unit 8 are assessed here in terms of pre-incident planning.

## Materials and Supplies:

Chalkboard or flip chart  
Copies of a pre-incident plan for a local company  
A blueprint for the building you are in (optional)  
Slide projector and slides 100-111

## Instructor Preparation:

Obtain a pre-incident plan for a local company well in advance of training. Make sure it covers most of the items addressed in this section. Obtain the blueprints for the building in which you are training, if possible. These will be useful when you have the students plan the building.

Contact your state Emergency Management Agency to obtain a copy of Annex D, the state Radiological Protection Plan required by SARA. This document establishes responsibilities and reporting structures within a radiological program.

# INTRODUCTION

## Introduction

### Tell the students:

- What they will learn in this section
- Approximately how long it will take

Fire departments should begin planning and preparing for hazardous materials incidents long before they occur. Through pre-incident planning, hazards can be identified, resources appropriated, and personnel trained. First Responder responsibilities for pre-incident planning are determined by each jurisdiction.

The objectives of pre-incident planning are to prevent and prepare for incidents. Both are important and both save lives. Hazards can be identified and plans can be prepared before life threatening situations occur. Preparedness is not a new concept for fire fighters. For years, fire services have conducted pre-fire plans for buildings and used these plans during drills and actual fires. These same skills are used in pre-incident planning activities for hazardous materials incidents.

## Activity



Show the students a copy of a pre-incident plan for a local company. Refer to this plan for examples as you discuss this topic.



# HAZARD IDENTIFICATION

## Activity



**If time permits, “pre-incident plan” the building you are in, using the form on the following pages. Allow the students to help complete the plan.**

A good plan begins with identifying the types and locations of hazards within a community. It must also include a way to notify authorities of any change in status of a material, its quantity, or its location. The sample Pre-Incident Plan Form on the following pages lists the elements of a typical pre-incident plan.

## SAMPLE PRE-INCIDENT PLAN FORM

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### SECTION I - LOCATION INFORMATION

Location: \_\_\_\_\_

Building/Site Name: \_\_\_\_\_

Type of Business: \_\_\_\_\_

Building Size: Frontage: \_\_\_\_\_ x Depth: \_\_\_\_\_ = Area: \_\_\_\_\_

Owner: \_\_\_\_\_

Owner's Address: \_\_\_\_\_

Owner's Telephone: \_\_\_\_\_

Owner's Agent: \_\_\_\_\_

Agent's Address: \_\_\_\_\_

Agent's Telephone: \_\_\_\_\_

Emergency Contact: \_\_\_\_\_

Emergency Telephone: \_\_\_\_\_

Cleanup Contractor: \_\_\_\_\_

Prepared by: \_\_\_\_\_

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### SECTION II - BUILDING INFORMATION

Specific Property Use: \_\_\_\_\_

Number of Stories: \_\_\_\_\_

Age of Building: \_\_\_\_\_

Construction Type: 1st Type \_\_\_\_\_ % 2nd Type \_\_\_\_\_ %

1 = Fire Resistive

5 = Heavy Timber

2 = Protective Non-Combustible

6 = Unprotected



3 = Protected Ordinary  
4 = Protected Wood Frame

7 = Unprotected Ordinary  
8 = Unprotected Wood Frame

Relevant Features: \_\_\_\_\_

Type of Roof Construction: \_\_\_\_\_

Standpipes:

Exterior Connections: \_\_\_\_\_ Locations: \_\_\_\_\_

Interior Connections: Wet \_\_\_\_\_ Dry \_\_\_\_\_

<u>Location</u>	<u>Type</u>
_____	_____
_____	_____
_____	_____

Sprinkler Systems:

Exterior Connection Location:

% Coverage: Wet: \_\_\_\_\_ Dry: \_\_\_\_\_ Both: \_\_\_\_\_

Shutoff Location: \_\_\_\_\_

Valves: Open (Y/N) \_\_\_\_\_ Supervised (Y/N) \_\_\_\_\_ Zoned Areas (Y/N) \_\_\_\_\_

Other Extinguishing Systems (halon, CO 2 , dry powder, etc.):

Type: \_\_\_\_\_

Location: \_\_\_\_\_

Warning System:

Detection Type (heat, smoke, both): \_\_\_\_\_

Connection to Alarm (local, central, master, auxiliary):

Alarm Company: \_\_\_\_\_ Telephone: \_\_\_\_\_

Access and Entrances: \_\_\_\_\_

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### **SECTION III - BUILDING HAZARDS**

Common Hazards - List any common hazards (heating system, combustibles, transformers) in the building and their locations

Utilities - List type and location of utility shutoffs (natural gas, electrical)

Special Hazards - List any special hazards (acetylene, propane tanks, other chemicals) in the building and their locations, including types of containers and any containers (attach MSDS for each chemical)

#### **SECTION IV - PROCEDURES TO BE USED IN THE EVENT OF A MAJOR SPILL/ RELEASE**

(attach copies of both the facility plan and your department's plan)

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#### **SECTION V - HYDRANT LOCATIONS AND PLACEMENT OF APPARATUS**

(attach a copy of the site plan with hydrants and preferred  
apparatus locations highlighted)

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#### **SECTION VI - TARGET HAZARDS IN THE AREA TO BE PROTECTED/ EVACUATED**

(attach a copy of the site plan with specific hazards/vulnerable  
areas identified and highlighted)

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#### **SECTION VII - SITE PLAN**

(attach a copy of a detailed site plan (8 ½" x 11" only))

## Fixed Sites

### Activity



**Distribute copies of Annex D, the State Radiological Protection Plan and discuss responsibilities at a radiological incident.**

If you are involved with developing pre-incident plans, you should visit all facilities that have been identified as housing hazardous materials. In addition to obtaining specific data on each hazardous material, you should review the facility's emergency plans. You can obtain specific data on hazardous substances from MSDSs. If, for some reason, MSDSs are not available or are incomplete, consult other references.

It is not always readily apparent that a site contains hazardous materials. The facility may be small and contain only very small quantities of hazardous materials (below the mandatory reporting levels), or the owners and operators may not be aware of the hazards presented by the materials they are using. At times, you must be a detective. You must look at what the facility is manufacturing, how supplies are stored, and what kind of equipment is being used. You also need to recognize clues that hazardous materials are present. Clues include obvious signs such as placards and labels or subtle signs such as specific processes and procedures.

## Transportation Routes

Fixed-site industrial facilities are not the only locations of potential hazardous materials incidents. Transportation corridors, including waterways and highways, represent potential sites for incidents and must be planned. Hazardous materials incidents may also occur at landfills, construction sites, retail areas, underground storage tanks, utility right-of-ways, and rail yards.

The hazard identification phase of pre-incident planning primarily involves gathering information. Once you have begun gathering information, you should start developing a comprehensive plan of action.

# HAZARD ANALYSIS AND RISK ASSESSMENT

## Slides



Show slides 100-111 and ask the students the following questions:

- What hazards would you expect to find if you planned these sites?
- What potential hazards would you look for?
- What are the vulnerable areas?
- What are the vulnerable populations?

The next step is hazard analysis and risk assessment. This is the process during which you:

- Identify the potential for an incident that will cause damage to life, property, or the environment
- Analyze the risk or probability of an incident occurring
- Identify vulnerable areas

## Identify the Potential

Use the information obtained from inspections and pre-incident planning visits, along with data received from facilities, reference textbooks, and other agencies, to determine the likelihood that an incident will occur. This will also help you estimate the risks an incident would present to fire service personnel, civilians, property, and the environment.

## Analyze the Risk

To assess risks, you need information on:

- Transportation frequency and routes
- Specific risks to people and property in vulnerable areas
- Past experiences with the material and the facility
- Control and safeguard mechanisms currently in place

A thorough hazard identification and risk assessment identifies fixed facilities of most concern to a community. Site-specific pre-incident plans should be developed for those facilities. Before you conduct an actual inspection of the sites, review all available information on the facility, including:

- Previous inspection reports
- Drawings
- Permit applications
- History of fires or chemical incidents
- MSDSs or lists of chemicals

## Identify Vulnerable Areas

For planning purposes, the population and facilities located within susceptible areas are considered vulnerable. Information about the vulnerable population can be the basis for planning activities that may be needed, such as evacuation.

After a site visit, estimate the residential population, as well as the number of persons who may be present at commercial, industrial, and recreational facilities. Note high volume roadways and water supply sources as well as facilities with high-density or dependent populations.

Community characteristics can be used to determine the relative degree of vulnerability. The level of vulnerability depends on the anticipated difficulty of protecting the population and on the number of persons that could be exposed if a hazardous materials incident were to occur.

# ANALYSIS OF RESOURCES

Resources include everything needed to control an incident such as personnel, supplies, equipment, and funding. Resources also include knowledge, expertise, access to other agencies, and regulatory processes.

## Required Resources vs. Available Resources

### Activity



Ask students from various departments to briefly describe their resources in terms of:

- Personnel and training
- Specialized equipment
- Specialized training
- Mutual assistance agreements

After determining what resources will be needed to appropriately respond to an incident, make an inventory of actual resources. If there is a discrepancy between the two, a plan must be developed to work within limitations or to obtain the necessary resources. This could include measures to prevent an incident, reduce the risks, limit the consequences, or improve response capabilities.

Your available resources and training help dictate how you handle hazardous materials incidents. One fire department may have the resources and training to handle large scale hazardous materials incidents while another jurisdiction may need to develop a mutual support response from a neighboring department. For yet another, the best approach may be to identify the hazard and take steps to prevent the incident.

None of these approaches is wrong. The right response is working within limitations of resources and training. The wrong response is going beyond those limitations.

Not all communities need every type of equipment on the market, nor do they all need the most detailed technical training available. Each community's needs depend, in part, on the number of incidents likely to occur and the availability of outside resources, such as a hazardous materials emergency response team in a nearby city, a readily available industry expert, and state or federal agencies that are available to assist with incident response.

Incidents that consume large amounts of resources do not occur frequently. Rather, it is the smaller incidents, such as a spilled five-gallon pail, a leaking gas tank on a car, or plastic burning in a building that represent the most frequently encountered hazardous materials incidents. Ironically, these are the incidents for which there is the least planning and the ones often overlooked as health and safety risks.

### Activity



Conduct Activity 9-2 as you discuss resources.

During the preparation phase, you must list and categorize all possible sources of assistance, as well as all available equipment and supplies. Inventory the capabilities and limitations of your department or company. Decisions can then be made about who, or what agency, will be able to augment your resources.

Outside agencies that may be of assistance and with whom you should plan include:

- Other fire departments and hazardous materials response teams
- Public health agencies
- Chemists and industrial hygienists
- SERC
- LEPC
- State and local environmental agencies
- Industry response organizations
- The water authority
- Universities with chemists, toxicologists, and public health specialists
- Federal agencies (EPA, OSHA, and Coast Guard)
- Hazardous materials cleanup companies
- Utility companies

If these outside agencies and organizations are to be used, their limitations and capabilities must be understood and incorporated into the planning process. As an emergency response plan is developed, each resource must be consulted and included in the process.

### Conclusion

**Briefly review the key points covered in this section.**

### Activity



**Conduct the Post-Test to the course. Allow about 30 minutes, then collect the students' answers.**

Large numbers of resources are needed less frequently when pre-incident planning activities lead to prevention. As facilities are planned, there are many opportunities to initiate educational programs, increase civilian awareness to the potential for hazardous materials incidents, and initiate corrective actions to prevent incidents. Prevention may not be as exciting or as interesting as hazardous materials response, but it does save valuable resources, including lives and health.



# **UNIT 9**

## **APPENDIX**



# REGULATIONS

This material was designed to provide emergency responders with background information on some of the regulations that have pioneered changes in the fire service. This information has been summarized to address fire service interests, and is not intended to be all inclusive or to provide legal interpretation.

## A. Federal Regulations

### 1. RCRA

In 1976, Congress passed the Resource Conservation and Recovery Act (RCRA) which allowed the federal government to regulate the creators, transporters, and treatment and disposal operators of hazardous wastes. This was the federal government's first effort at managing hazardous wastes and their effect on public health and the environment. However, this act did not affect the many hazardous waste sites that had been created prior to the passage of RCRA—many of which were abandoned and contained unknown quantities of unknown wastes.

### 2. CERCLA

In order to address the cleanup of those sites not covered under RCRA, Congress enacted the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). CERCLA quickly became known as Superfund, in part because of the funds that it created for the cleanup and proper reclamation of abandoned and inactive hazardous waste disposal sites. Specifically, this act created a five-year program that allowed the government to spend \$1.6 billion to clean up hazardous waste sites. It further allowed the federal government to negotiate cleanups by responsible parties, to sue such parties for the cost of cleanup, or to sue for orders directing responsible parties to clean up the sites themselves.

In addition, Superfund provided for the creation of the *Agency for Toxic Substances and Disease Registry* (ATSDR). The ATSDR is charged with carrying out the health-related responsibilities of CERCLA and RCRA. For example, the agency collects, maintains, analyzes, and disseminates information related to human exposure to toxic or hazardous substances. It also assists the Environmental Protection Agency (EPA) in identifying hazardous waste substances that should be regulated, and performs numerous other activities. However, the bulk of responsibility for cleanup and management was delegated to EPA.

Superfund progress was very slow and expensive. Numerous lawsuits had to be brought against responsible parties; this used up a tremendous amount of Superfund money and delayed cleanup progress at many of the sites. In addition, CERCLA had neglected to include a statement of principles or goals and objectives. As a result, there seemed to be much confusion over exactly what outcomes were expected.

### 3. SARA

In an effort to overcome these obstacles, and after much discussion and many drafts, Congress passed the Superfund Amendments and Reauthorization Act of 1986 (SARA). The overriding purpose of SARA was to expand and accelerate the cleanup efforts originally established by CERCLA. In order to do this, SARA provided additional funding (\$7.5 billion) and time (an additional 5 years) to the original Superfund program. SARA also made changes in the law to promote speedier action and a more definitive direction for the cleanup efforts.

**a. SARA TITLE I  
PROVISIONS RELATING PRIMARILY TO RESPONSE AND LIABILITY**

SARA Title I establishes new worker protection standards which address hazardous materials issues such as, but not limited to: site analysis, training, medical surveillance, protective equipment, decontamination procedures, and emergency response. This section also addresses the establishment of certain grant programs, including the hazardous waste worker training grant that sponsored this training program.

**b. SARA TITLE II  
MISCELLANEOUS PROVISIONS**

SARA Title II deals with various provisions such as financial liability, insurance, oversight and reporting requirements, and, more importantly, to response personnel and the transportation of hazardous materials.

**c. SARA TITLE III  
EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW**

SARA Title III, often referred to as “The Emergency Planning and Community Right-to-Know Act of 1986,” contains the SARA provisions most relevant to fire fighters. These provisions encourage communities and emergency responders to play active roles in pre-incident planning and prevention. Title III is made up of three subtitles that may be further broken down by section. Those sections most relevant to first responders are listed below:

**Subtitle A: Emergency Planning and Notification**

**Section 301:** *Establishment of state commissions, planning districts, and local committees*

**Section 302:** *Substances and facilities covered and notification procedures*

**Section 303:** *Comprehensive emergency response plans*

**Section 304:** *Emergency notification*

**Section 305:** *Emergency training and review of emergency systems*

**Subtitle B: Reporting Requirements**

**Section 311:** *Material Safety Data Sheets*

**Section 312:** *Emergency and hazardous chemical inventory forms*

**Section 313:** *Toxic chemical release forms*

**Subtitle C: General Provisions**

The emergency planning sections were designed to help state and local governments develop greater response and preparedness capabilities. They require that each state establish a *State Emergency Response Commission* (SERC), which in turn must designate local emergency planning districts and appoint *Local Emergency Planning Committees* (LEPCs).

The LEPCs' primary responsibility is the development of emergency response plans. These plans help prepare communities for potential hazardous materials emergencies.

In preparing their emergency response plans, LEPCs must:

- Identify facilities and transportation routes of potentially hazardous substances
- Establish emergency response procedures
- Designate a community coordinator and facility coordinators to implement the plan
- Devise methods for identifying potential releases and the area and population likely to be affected
- Identify available emergency equipment and facilities and those individuals responsible for them
- Develop evacuation plans
- Develop standards for an emergency response personnel training program
- Develop a plan for rehearsing emergency response plans

The emergency notification sections of Title III require that facilities immediately notify their LEPCs and SERCs of any hazardous materials releases meeting or exceeding reportable quantities. At a minimum, notification must include the chemical name, the quantity released, and possible health risks. Facilities must also prepare formal, written notices regarding these releases. The Community Right-to-Know reporting requirements state that facilities using, making, or storing certain chemicals in certain quantities must provide Material Safety Data Sheets (MSDSs) or a list of MSDS chemicals to the LEPC, the SERC, and the local fire department. Local fire departments, LEPCs, and SERCs cannot dictate how the reporting is to be done; SARA dictates reporting procedures.

Toxic chemical release reporting is intended to inform the public as well as government officials about toxic chemical releases. Facilities are responsible for submitting (to EPA and state officials) data on releases of specified chemicals that occurred during the previous calendar year.

**d. SARA TITLE IV  
RADON GAS AND INDOOR AIR QUALITY RESEARCH**

Title IV of SARA addresses issues that are most directly related to non-emergency work.

**4. OSHA 1910.120**

OSHA 1910.120 (section q) addresses six main issues that have an impact on fire fighters and other emergency response personnel:

- **Medical surveillance programs**
  - Established by the employer
  - Required for members of hazardous materials response teams
  - Required for all personnel who become exposed to hazardous materials, especially those experiencing symptoms of exposure

- **Training programs**
  - *Minimum* training requirements include:
    - Eight hours of training for operations level first responders
    - An additional 24 hours of training for hazardous materials technicians, specialists, and incident commanders
  - Topics include, but are not limited to:
    - Care and use of chemical protective clothing
    - Techniques and procedures to stop or control leaks
    - Clothing and equipment decontamination
- **Emergency response planning**
  - Required for fire departments who respond to hazardous materials emergencies
  - Minimum planning components include:
    - Pre-incident planning
    - Personnel roles, lines of authority, training, and communications
    - Emergency recognition and prevention
    - Site security and control
    - Evacuation routes and procedures
    - Decontamination
    - Emergency medical treatment
    - Critique of response
    - Personal protective equipment
- **Incident management systems**
- **Decontamination procedures**
- **Chemical suit testing**

## 5. **OSHA 1910.1200**

OSHA's Hazard Communication Standard (1910.1200), commonly known as the "Worker Right-to-Know Rule," applies to all employers and, therefore, protects the interests of all workers. Specifically, this regulation is intended to provide all employees who work with or around hazardous materials easy access to hazard information about these materials. It requires that employers make MSDSs readily available to employees. It further requires that employers provide annual employee training to identify where MSDSs are stored and how MSDS information should be interpreted. OSHA 1910.1200 not only preempts state hazard communication laws in states without state OSHA plans, it also requires federal OSHA approval for state hazard communication laws in states that operate their own OSHA programs.

OSHA also develops and oversees numerous other regulations that are not necessarily related to hazardous materials, but pertain to the health and safety of workers in other ways.

## **6. *Hazardous Materials Transportation Act***

This act gives the Department of Transportation (DOT) regulatory authority to establish transportation regulations such as placarding and labeling of hazardous substances, container and vessel specifications, and limitations on the quantities and/or types of materials that may be transported under certain conditions. In addition, the DOT oversees inspection and compliance with these regulations. Detailed information on DOT regulations can be found in Title 49 of the Code of Federal Regulations.

As part of the DOT, the United States Coast Guard (USCG) is responsible for regulating transportation of hazardous materials on navigable waters. The USCG maintains the Chemical Hazards Response Information System (CHRIS), which provides health and safety information for responders to hazardous materials spills.

## **7. *Environmental Protection Agency***

The EPA is responsible for regulation, control, and management of air and water pollution, hazardous waste disposal, noise, radiation, toxic substances, and licensing pesticides, fungicides, and rodenticides. SARA has expanded EPA's responsibilities to include occupational health and safety standards (EPA's 40 CFR 311) identical to OSHA 1910.120 for state and local government workers not covered by OSHA.

## **B. *State and Local Regulations***

Many state and local governments are developing their own regulations pertaining to the manufacture, storage, and transportation of hazardous materials within their jurisdictions. While these regulations must at least meet the minimum federal requirements and must not be inconsistent with federal regulations, they may be somewhat different from federal regulations. This has the potential for creating an untold number of different regulations from state to state, and possibly from locality to locality. It could become a tremendous burden for anyone transporting hazardous materials through different localities and states to understand and comply with each of these regulations. The transportation industry is working with individual jurisdictions and the federal government to alleviate this problem.

As previously mentioned, Title III of SARA mandates that each state establish a SERC (State Emergency Response Commission), LEPCs (Local Emergency Planning Committees), and local emergency planning districts. The SERC designates the local emergency planning districts. LEPCs must include representatives from each of the following departments/interests: state and local government, police, fire, civil defense, public health, environment, medical treatment, transportation, affected facilities, community groups, and the media.

Each LEPC is responsible for developing a district-wide emergency response plan; establishing rules pertaining to the transportation, storage, and use of hazardous materials in their district; notifying the public about LEPC meetings and activities; establishing public inquiry procedures; and evaluating available resources. The emergency response plans are reviewed by the SERC, which also oversees other LEPC activities.

